Physical Science **DSHS**
Name_____ **Ellis**
Name_____ **Ellis**

Motion WS 1 Credit recovery

For each problem: Make a sketch of the scenario
Use an arrow to indicate the displacement
Calculate the distance and displacement of each and show your work. Pay attention to the unit (km, m, miles, feet, blocks).

1. John flies directly east for 20 km, then turns north to dodge a flock of geese flies for another 10 km. Distance _____ Displacement _____	6. Jessica rollerbladed 5 miles North, and then 2 miles East. To get home she rollerbladed 5 miles South and then 2 miles West. Distance _____ Displacement _____
2. Cameron flies directly west for 13 km, then turns to the south and flies for another 30 km. He then flies east for 13 km before landing at the airport. Distance _____ Displacement _____	7. Darren skateboards 1 mile, then turns 90 degrees and runs 3 miles North. Distance _____ Displacement _____
3. Marissa runs north for 37 meters, then turns east and runs for another 10 meters, then stops. Distance _____ Displacement _____	8. Joy drives 13 miles to her grandmothers house dropped off a dozen eggs, had a cup of coffee and then drove home. Distance _____ Displacement _____
4. Alex walks east for 3 km, stops for a break, and then runs the same direction for 4 km before he stops. Distance _____ Displacement _____	9. Tyler motor biked around a 500 m dirt track 3 times in the 200- motor-cross championship race. The start line was the same line as the finish line. Distance _____ Displacement _____
5. Taylor rides her bicycle 20 km north, turns 180 degrees, and rides the bicycle 15 km. Distance _____ Displacement _____	10. Nicole walked 275 meters forward to take her dog to the park, after the park the walked 40 meters forward to the ice cream shop. Distance _____ Displacement _____

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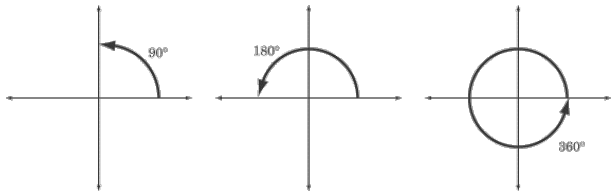
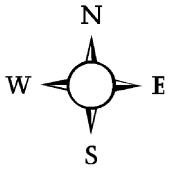
First – **WE HAVE TO READ THE DIRECTIONS**…. There are multiple things that they are asking for. Aside from the sketch it is asking us to find distance and displacement – so we better figure out what those two things are.

Distance:

Displacement:





Also, there are directions used repeatedly, if you see a direction, you better draw a compass!

If degrees are mentioned, you should be able to figure out what that means in terms of motion.

In our reading and in class we looked at examples **when vector arrows were linear**

When they pointed in the same direction – in that case we could add them together to find out displacement – that direction would be the displacement direction.

When they pointed in opposite directions – we could subtract the values to find out the displacement – the direction of the net movement would be the displacement direction.

OR we could draw a scale and label our initial and final positions on the scales – when we did, we could always choose ZERO as our initial position because it was not defined otherwise (this is not always the case!)– once our final and initial positions were labeled on the diagram we could use:
$\Delta x = x_f - x_i$ (change in position = final position – initial position)

In our reading and in class we looked at examples **when vector arrows were not linear and formed a right triangle**

When we had a right triangle we could use Pythagorean's theorem to find the displacement. This is defined as $a^2 + b^2 = c^2$

Lets highlight some of the most missed problems…..

4. Derrick crawls 4 feet then turns 90 degrees and crawls 6 feet.

9. Sandy ran 3 blocks north, and then 2 blocks west.

10. George swam 3 complete laps in a 50 meter pool. (1 lap is to the other side and back)